UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,722	07/30/2004	Hui-Hua Kuo	MTKP0087USA	4721

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EXAMINER
HOLDER, ANNER N

ART UNIT	PAPER NUMBER
2621	

NOTIFICATION DATE	DELIVERY MODE
09/29/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

winstonhsu.uspto@gmail.com
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *0716/08*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date ____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/16/08 has been entered.

Response to Arguments

2.   Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

3.   Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1, 2, 6, 7, 8, 12, 13, 16, 17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hawkins et al. (Hawkins) US 6,519,287 B1 in view of Owen et al. (Owen) US 2002/0034252 A1.

6.   As to claim 1, Hawkins teaches allocating a first memory space and a second memory space in a first memory, wherein each of the first and the second memory

spaces is sufficient for storing one motion vector. [Abstract; Fig. 7; Fig. 9; Fig. 3; Col. 4 Lines 30-42]

Hawkins does not specifically teach determining a type of the first macroblock; and storing at least one motion vector of the first macroblock in the first or the second memory space according to the type of the first macroblock.

Owen teaches determining a type of the first macroblock; [fig. 15b (1254, 1272); 15c; ¶ 0103-0104] and storing at least one motion vector of the first macroblock in the first or the second memory space according to the type of the first macroblock. [fig. 15a (1204, 1206); fig. 15b (1252, 1262, 1270); ¶ 0100; ¶0103]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hawkins's invention by incorporating the teachings of Owens to allow for improved coding efficiency.

7.   As to claim 2, Hawkins (modified by Owen) teaches a first block, a second, a third block, and a fourth block; [Hawkins - figs. 5-7; col. 5 lines 37-45; Col. 6 Lines 52-62; col. 7 lines 53-56] and the step of storing at least one motion vector of the first macroblock in the first or the second memory space according to the type of the first macroblock [Hawkins - Abstract; Fig. 7; Fig. 9; col. 8 lines 1-23; col. 7 lines 53-56; Owen - fig. 15a (1204, 1206); fig. 15b (1252, 1262, 1270), (1254, 1272); 15c; ¶ 0100; ¶0103-0104] comprises when the first macroblock is determined to comprise a first block, a second block, a third block, and a fourth block, storing the motion vector of the third block in the first memory space and storing the motion vector of the fourth block in the

second memory space. [Abstract; Fig. 7; Fig. 9; col. 8 lines 1-23; Col. 5 Lines 37-45;

Col. 6 Lines 52-62; Fig. 3; Col. 4 Lines 30-60; It is well known in the art that addresses

within memory can be assigned]

8.   As to claim 6, Hawkins (modified by Owen) teaches the first memory is a DRAM,

an SRAM, or registers. [Abstract; Col. 2 Lines 55-61; Fig. 9; Fig. 1; Fig. 3; Col. 4 Lines

30-42]

9.   As to claim 7, see rejection of claim 1 above.

10.   As to claim 8, see rejection of claim 2 above.

11.   As to claim 12, see rejection of claim 6 above.

12.   As to claim 13, Hawkins teaches a row-based memory management method

used in the decoding process of a video frame, [abstract; fig. 1; fig. 8; col. 2 lines 30-32;

col. 9 lines 33-37] for storing the motion vectors of a plurality of macroblocks as

candidate predictors for use in the decoding process, wherein each row of the video

frame comprises N macroblocks, the method comprising: allocating N memory units in a

first memory, wherein each memory unit comprises a first memory space and a second

memory space, and each of the first and the second memory spaces is sufficient for

storing at least one motion vector of one macroblock; [Hawkins - Abstract; Fig. 7; Fig. 9;

Fig. 3; Col. 4 Lines 30-42] determining a location and a type of a first macroblock; and

storing at least one motion vector of the first macroblock in the first or the second

memory space in a memory unit of N memory units according to the type and the

location of the first macroblock.

Hawkins does not specifically teach determining a type of a first macroblock; and storing at least one motion vector of the first macroblock in the first or the second memory space in a memory unit of N memory units according to the type and the location of the first macroblock.

Owen determining a type of a first macroblock; [fig. 15b (1254, 1272); 15c; ¶ 0103-0104] and storing at least one motion vector of the first macroblock in the first or the second memory space in a memory unit of N memory units according to the type of the first macroblock. [fig. 15a (1204, 1206); fig. 15b (1252, 1262, 1270); ¶ 0100; ¶0103]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hawkins's invention by incorporating the teachings of Owens to allow for improved coding efficiency.

13.   As to claim 16, see rejection of claim 6 above.

14.   As to claim 17, Hawkins (modified by Owen) teaches allocating an additional memory unit in a second memory, wherein the additional memory unit is capable of storing at least one motion vector of one macroblock; [Abstract; Fig. 7; Fig. 9; Fig. 3; Col. 4 Lines 30-42] and when a second macroblock of the video frame is decoded, storing at least one motion vector of the second macroblock in the additional memory unit to overwrite at least one motion vector of a third macroblock previously stored in the additional memory unit, wherein the fourth macroblock is decoded immediately before the third macroblock. [Abstract; Figs. 5-7; Fig. 9; Col. 5 Lines 37-45; Col. 6 Lines 52-62; Fig. 3; Col. 4 Lines 30-60; It is well known in the art that addresses within memory can

be assigned, allocated space can be reused by overwriting and a memory array structure comprises rows and column]

15.   As to claim 18, see rejection of claim 6 above.

16.   As to claim 19, Hawkins (modified by Owen) teaches determining whether the first macroblock comprises only one motion vector; [Hawkins - col. 5 lines 36-65] and the step of storing at least one motion vector of the first macroblock in the first or the second memory space according to the type of the first macroblock comprises: when the first macroblock is determined to comprise only one first motion vector, storing the first motion vector in the first or the second memory space. [Hawkins - Abstract; Fig. 7; Fig. 9; Fig. 3; Col. 4 Lines 30-42; Owen - fig. 15a (1204, 1206); fig. 15b (1252, 1262, 1270); ¶ 0100; ¶0103]

17.   As to claim 20, see the discussion of claim 19 above.

18.   As to claim 21, Hawkins (modified by Owen) teaches determining whether the first macroblock is located at an Lth row and Kth column of the video frame; and the step of storing at least one motion vector of the first macroblock in the first or the second memory space in the memory unit of the N memory units according to the type and the location of the first macroblock comprises: [Hawkins - Abstract; Fig. 7; Fig. 9; Fig. 3; Col. 5 Lines 37-45; Col. 6 Lines 52-62; Col. 4 Lines 30-42; Owen - fig. 15a (1204, 1206); fig. 15b (1252, 1262, 1270); ¶ 0100; ¶0103] when the first macroblock is determined to be located at the Lth row and the Kth column of the video frame , storing at least one motion vector of the first macroblock in the first or second macroblock previously stored in the Kth memory unit, wherein the second macroblock is located at

an (L-1)th row and the Kth column, K is an integer between 1 and N, and L is an integer

larger than 1. [Hawkins - Abstract; Fig. 7; Fig. 9; Col. 5 Lines 37-45; Col. 6 Lines 52-62;

Fig. 3; Col. 4 Lines 30-60; It is well known in the art that addresses within memory can

be assigned, allocated space can be reused by overwriting and a memory array

structure comprises rows and columns]

19.   Claims 3-5, 9-11, 14, 15   are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hawkins et al. (Hawkins) US 6,519,287 B1 in view of Owen et al.

(Owen) US 2002/0034252 A1 further in view of Kondo et al. (Kondo) US 7,116,372 B2.

20.   As to claim 3, Hawkins (modified by Owen) teaches the method of claim 1.

        Hawkins (modified by Owen) does not specifically teach the video frame is a

progressive frame.

        Kondo teaches the video frame is a progressive frame. [Abstract; Col. 11 Lines

29-48; Co. 11 Line 66 – Col. 12 Line 6]

        It would have been obvious at the time the invention was made to incorporate the

deinterlacing method of Kondo with the motion vector storage method taught by

Hawkins (modified by Owen), enabling reduction of degradation of image quality.

21.   As to claim 4, Hawkins (modified by Owen) teaches the method of claim 1.

        Hawkins (modified by Owen) does not specifically teach the video frame is an

interlaced frame.

Kondo teaches the video frame is an interlaced frame. [Abstract; Col. 11 Lines 29-48; Co. 11 Line 66 – Col. 12 Line 6]

It would have been obvious at the time the invention was made to incorporate the deinterlacing method of Kondo with the motion vector storage method taught by Hawkins (modified by Owen), enabling reduction of degradation of image quality.

22.   As to claim 5, Hawkins (modified by Owen and Kondo) teaches determining whether the first macroblock comprises a first field and a second field ; and the step of storing at least one motion vector of the first macroblock in the first or the second memory space according to the type of the first macroblock comprises: when the first macroblock comprises a first field and a second field, storing the motion vector of the first field in the first memory space and storing the motion vector of the second field in the second memory space. [Hawkins- Abstract; Col. 11 Lines 29-48; Co. 11 Line 66 – Col. 12 Line 6; Owen - fig. 15b (1254, 1272); 15c; ¶ 0103-0104]

23.   As to claim 9, see above rejection of claim 3.

24.   As to claim 10, see above rejection of claim 4.

25.   As to claim 11, see above rejection of claim 5.

26.   As to claim 14, see above rejection of claim 3.

27.   As to claim 15, see above rejection of claim 4.

Conclusion

28.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hoang (US 6,295,089 B1); Malinowski (US 4,888,741); Ward et al. (US 4894770).

29.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNER HOLDER whose telephone number is (571)270-1549. The examiner can normally be reached on M-Th, M-F 8 am - 3 pm EST.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

        Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ANH 09/17/08
/Tung Vo/   Primary Examiner, Art Unit 2621